Discrete Math
Quiz 3

Name:_____

You have 10 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

1. Let $F: \mathbb{R} \to \mathbb{R}: x \mapsto x^2$ be the squaring function.
   (a) What is the image of F?

   $\{x \in \mathbb{R} \mid x \geq 0\}.$

   (b) What is the coimage of F?

   $\{y \in \mathcal{P}(\mathbb{R}) \mid (\exists x)(y = \{x, -x\})\}.$

2. Give an example of a function $G: \mathbb{R} \to \mathbb{R}$ that is
   (a) Injective, but not surjective.

   One possible answer: $G(x) = e^x.$

   (b) Surjective, but not injective.

   One possible answer: $G(x) = x^3 - x.$